NEW MEXICO
ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

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BUTCH TONGATE
Deputy Secretary

TOM SKIBITSKI
Acting Director
Resource Protection Division

Certified Mail - Return Receipt Requested

April 11, 2013

Mr. Juan L. Griego, Deputy Manager
U.S. DOE National Nuclear Security Administration
Los Alamos Site Office (NA-00-LA)
3747 West Jemez Road
Los Alamos, New Mexico 87544

Mr. Michael Brandt, Associate Director
Environment, Safety, Health and Quality MS K491
Los Alamos National Security, LLC
P.O. Box 1663
Los Alamos, New Mexico 87545

RE: Major Non-municipal, SIC 9711, NPDES Compliance Evaluation Inspection, Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility, NM0028355, March 12, 2013

Dear Mr. Griego and Mr. Brandt:

Enclosed, please find a copy of the report for the referenced inspection that the New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Problems noted during this inspection are discussed in the Further Explanations section of the inspection report. You are encouraged to review the inspection report, required to correct any problems noted during the inspection, and to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to notify in writing, both the USEPA and NMED regarding modifications and compliance schedules at the addresses below:

Diana McDonald
U.S. Environmental Protection Agency
Region VI Enforcement Branch (6EN-WM)
1445 Ross Avenue
Dallas, Texas 75202-2733

Bruce Yurdin, Program Manager
New Mexico Environment Department
Surface Water Quality Bureau, Point Source Regulation Section
P.O. Box 5469
Santa Fe, New Mexico 87502

I appreciate the cooperation of U.S.DOE, NNSA LASO and LANS, LLC staff during the inspection. If you have any questions about this inspection report, please contact me at 505-827-0418.

Sincerely,

/s/ Erin S. Trujillo

Erin S. Trujillo
Surface Water Quality Bureau

cc: Rashida Bowlin, USEPA (6EN) by e-mail
Darlene Whitten-Hill, USEPA (6EN-WC) by e-mail
Carol Peters-Wagnon, USEPA (6EN-WM) by e-mail
Larry Giglio, USEPA (6WQ-PP) by e-mail
Gene Turner, U.S.DOE, NNSA, LASO by e-mail
Hannah Branning, USEPA (6EN-WC) by e-mail
Jan Walker USEPA (6EN-WC) by e-mail
Diana McDonald, USEPA (6EN-WM) by e-mail
Robert Italiano, NMED District II Santa Fe by e-mail
Mike Saladen, Team Leader, LANS ENV-RCRA by e-mail

EPA

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

NPDES Compliance Inspection Report

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspec. Type	Inspector	Fac Type
N	NM0028355	130312	C	S	4

Remarks: NATIONAL REASEA RCH LABORATORY

Inspection Work Days	Facility Evaluation Rating	BI	QA	Reserved
	2	N	N	

Section B: Facility Data

Name and Location of Facility Inspected *(For industrial users discharging to POTW, also include POTW name and NPDES permit number)*
Sanitary Effluent Reclamation Facility (SERF), Technical Area (TA) 3-1398 at Los Alamos National Laboratory (LANL). LANL is jointly operated by the U.S. Department of Energy (DOE) National Nuclear Security Administration (NNSA) Los Alamos Site Office (LASO) and Los Alamos National Security, LLC (LANS). Los Alamos County

Entry Time /Date
~0845 hours / 03/12/2013
SERF
~1030 hours / 03/12/2013

Exit Time/Date
~1300 hours / 03/12/2013

Permit Effective Date
August 1, 2007, Modified 07/17/2007, 05/13/2011 & 10/11/2011

Permit Expiration Date
July 31, 2012

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)
-Gene Turner, Engineer, U.S.DOE, NNSA, LASO / 505-667-5794
-Mike Saladen, Team Leader, ENV-RCRA, LANS, LLC / 505 665 6085
-Mark Bailey, Environmental Professional, ENV-RCRA, LANS, LLC, / 505-665-8135
-Lawrence V. Chavez, Operations Manager, SERF, LANS, LLC
-Randy Sandoval, Environmental, Health and Safety (EHS) Manager, SERF, LANS, LLC
-Gabriel Herrera, SERF Operator, LANS LLC

Other Facility Data
SERF
Latitude 35.874711°
Longitude -106.317901°

SIC 9711, 9661

Name, Address of Responsible Official/Title/Phone and Fax Number
-Juan L. Griego, Manager, U.S. DOE, NNSA, LASO (NA-00-LA), 3747 West Jemez Road, Los Alamos, NM 87544 / General 505-667-6691, 667-5105 and fax 606-2004
-Michael T. Brandt, Associate Director, Environment, Safety, Health and Quality MS K491, Los Alamos National Security, LLC, P.O. Box 1663 Los Alamos, NM 87545 / 505-667-4218 and fax 665-3811

Contacted: Yes [ ] No [*]

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

M	Permit	N	Flow Measurement	M	Operations & Maintenance	N	CSO/SSO
M	Records/Reports	N	Self-Monitoring Program	N	Sludge Handling/Disposal	N	Pollution Prevention
M	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
U	Effluent/Receiving Waters	N	Laboratory	N	Storm Water	N	Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

1) USEPA R6 conducted an inspection at LANL on July 18, 2012. 2) Bypass of SERF in July 2012 (discharge to Sandia Canyon) and January 2013 (Outfall 001 PCB exceedance) was reported by the Permittees. 3) LANS, LLC ENV-RCRA staff reported discovering an unpermitted discharge from operations at SERF to Sandia Canyon on February 27, 2013. The Permittee provided a 24-hour verbal report to USEPA and NMED on February 28, 2013. The Permittee provided a follow-up letter to USEPA and NMED on March 4, 2013. 4) This Compliance Evaluation Inspection (CEI) was conducted at SERF on March 12, 2013. 5) See attached checklist report with further explanations and photo log.

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone/Fax	Date
Erin S. Trujillo */s/ Erin S. Trujillo*	**NMED/SWQB/505-827-0418**	**04/11/2013**
Signature of Management QA Reviewer	**Agency/Office/Telephone/Fax**	**Date**
Bruce Yurdin */s/Bruce Yurdin*	**NMED/SWQB/505-827-2795**	**04/11/2013**

LANL SERF 03/12/2013	PERMIT NO. **NM0028355**

SECTION A - PERMIT VERIFICATION

PERMIT SATISFACTORILY ADDRESSES OBSERVATIONS ☐ S ☒ M ☐ U ☐ NA (*FURTHER EXPLANATION ATTACHED* ***Yes***)

DETAILS: **USEPA letter dated 03/07/2012 indicates LANL application information received 02/08/12 was administratively complete.**

1. CORRECT NAME AND MAILING ADDRESS OF PERMITTEE ☒ Y ☐ N ☐ NA

2. NOTIFICATION GIVEN TO EPA/STATE OF NEW DIFFERENT OR INCREASED DISCHARGES. **See further explanations.** ☒ Y ☐ N ☐ NA

3. NUMBER AND LOCATION OF DISCHARGE POINTS AS DESCRIBED IN PERMIT **See further explanations.** ☐ Y ☒ N ☐ NA

Unpermitted outfall pipe plugged on day of this inspection.

4. ALL DISCHARGES ARE PERMITTED **No discharge from unpermitted outfall pipe on day of this inspection.** ☐ Y ☒ N ☐ NA

SECTION B - RECORDKEEPING AND REPORTING EVALUATION

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. ☐ S ☒ M ☐ U ☐ NA (*FURTHER EXPLANATION ATTACHED* ***Yes***)

DETAILS: **Questions 1-3 and 5 NA = not applicable/not evaluated. See further explanations for reporting information.**

1. ANALYTICAL RESULTS CONSISTENT WITH DATA REPORTED ON DMRs. ☐ Y ☐ N ☒ NA

2. SAMPLING AND ANALYSES DATA ADEQUATE AND INCLUDE. ☐ S ☐ M ☐ U ☒ NA

a) DATES, TIME(S) AND LOCATION(S) OF SAMPLING ☐ Y ☐ N ☒ NA

b) NAME OF INDIVIDUAL PERFORMING SAMPLING ☐ Y ☐ N ☒ NA

c) ANALYTICAL METHODS AND TECHNIQUES. ☐ Y ☐ N ☒ NA

d) RESULTS OF ANALYSES AND CALIBRATIONS. ☐ Y ☐ N ☒ NA

e) DATES AND TIMES OF ANALYSES. ☐ Y ☐ N ☒ NA

f) NAME OF PERSON(S) PERFORMING ANALYSES. ☐ Y ☐ N ☒ NA

3. LABORATORY EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS ADEQUATE. ☐ S ☐ M ☐ U ☒ NA

4. PLANT RECORDS INCLUDE SCHEDULES, DATES OF EQUIPMENT MAINTENANCE AND REPAIR. ☒ S ☐ M ☐ U ☐ NA

5. EFFLUENT LOADINGS CALCULATED USING DAILY EFFLUENT FLOW AND DAILY ANALYTICAL DATA. ☐ Y ☐ N ☒ NA

SECTION C - OPERATIONS AND MAINTENANCE

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. ☐ S ☒ M ☐ U ☐ NA (*FURTHER EXPLANATION ATTACHED* ***Yes***)

DETAILS: **At SERF, there were no high level alarms for indoor sump pit submersible pumps (visual inspections conducted according to on-site permittee representative). Spill procedures listed in written training summary. See further explanation on non-compliance (bypass) and unpermitted discharge. Some corrective actions taken for unpermitted discharge.**

1. TREATMENT UNITS PROPERLY OPERATED. **day of this inspection** ☒ S ☐ M ☐ U ☐ NA

2. TREATMENT UNITS PROPERLY MAINTAINED. **day of this inspection** ☒ S ☐ M ☐ U ☐ NA

3. STANDBY POWER OR OTHER EQUIVALENT PROVIDED. **No on-site standby power or generator** ☐ S ☒ M ☐ U ☐ NA

Siemens supervisory control and data acquisition (SCADA) included power supply, magmeter flows, conductivity & pH sensors

4. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE. **tank levels, feed pressures** ☒ S ☐ M ☐ U ☐ NA

5. ALL NEEDED TREATMENT UNITS IN SERVICE. **day of this inspection** ☒ S ☐ M ☐ U ☐ NA

Written SERF Operator Qualification Standards (written OJT requirements)

6. ADEQUATE NUMBER OF QUALIFIED OPERATORS PROVIDED. **But, SERF not fully staffed (only 4 of 6 operators)** ☐ S ☒ M ☐ U ☐ NA

On-site permittee representative briefly described

7. SPARE PARTS AND SUPPLIES INVENTORY MAINTAINED. **procurement/inventory procedures at SERF** ☒ S ☐ M ☐ U ☐ NA

8. OPERATION AND MAINTENANCE MANUAL AVAILABLE. **SERF** ☒ Y ☐ N ☐ NA

STANDARD OPERATING PROCEDURES AND SCHEDULES ESTABLISHED. **SERF** ☒ Y ☐ N ☐ NA

PROCEDURES FOR EMERGENCY TREATMENT CONTROL ESTABLISHED. **SERF** ☒ Y ☐ N ☐ NA

LANL SERF 03/12/2013	PERMIT NO. **NM0028355**

SECTION C - OPERATIONS AND MAINTENANCE (CONT'D)

9. HAVE BYPASSES/OVERFLOWS OCCURRED AT THE PLANT OR IN THE COLLECTION SYSTEM IN THE LAST YEAR?	☒ Y ☐ N ☐ NA
IF SO, HAS THE REGULATORY AGENCY BEEN NOTIFIED? **See further explanations.**	☒ Y ☐ N ☐ NA
HAS CORRECTIVE ACTION BEEN TAKEN TO PREVENT ADDITIONAL BYPASSES/OVERFLOWS? **Not documented complete.**	☐ Y ☒ N ☐ NA
10. HAVE ANY HYDRAULIC OVERLOADS OCCURRED AT THE TREATMENT PLANT?	☐ Y ☒ N ☐ NA
IF SO, DID PERMIT VIOLATIONS OCCUR AS A RESULT?	☐ Y ☒ N ☐ NA

SECTION D - SELF-MONITORING

PERMITTEE SELF-MONITORING MEETS PERMIT REQUIREMENTS. ☐ S ☐ M ☐ U ☒ NA *(FURTHER EXPLANATION ATTACHED* ***No*** *).*

DETAILS: **NA = not applicable / not evaluated**

1. SAMPLES TAKEN AT SITE(S) SPECIFIED IN PERMIT.	☐ Y ☐ N ☐ NA
2. LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES.	☐ Y ☐ N ☐ NA
3. FLOW PROPORTIONED SAMPLES OBTAINED WHEN REQUIRED BY PERMIT.	☐ Y ☐ N ☐ NA
4. SAMPLING AND ANALYSES COMPLETED ON PARAMETERS SPECIFIED IN PERMIT.	☐ Y ☐ N ☐ NA
5. SAMPLING AND ANALYSES PERFORMED AT FREQUENCY SPECIFIED IN PERMIT.	☐ Y ☐ N ☐ NA
6. SAMPLE COLLECTION PROCEDURES ADEQUATE	☐ Y ☐ N ☐ NA
a) SAMPLES REFRIGERATED DURING COMPOSITING.	☐ Y ☐ N ☐ NA
b) PROPER PRESERVATION TECHNIQUES USED.	☐ Y ☐ N ☐ NA
c) CONTAINERS AND SAMPLE HOLDING TIMES CONFORM TO 40 CFR 136.3.	☐ Y ☐ N ☐ NA
7. IF MONITORING AND ANALYSES ARE PERFORMED MORE OFTEN THAN REQUIRED BY PERMIT, ARE THE RESULTS REPORTED IN PERMITTEE'S SELF-MONITORING REPORT?	☐ Y ☐ N ☐ NA

SECTION E - FLOW MEASUREMENT

PERMITTEE FLOW MEASUREMENT MEETS PERMIT REQUIREMENTS. ☐ S ☐ M ☐ U ☒ NA *(FURTHER EXPLANATION ATTACHED* ***No*** *)*

DETAILS**: NA = not applicable / not evaluated**

1. PRIMARY FLOW MEASUREMENT DEVICE PROPERLY INSTALLED AND MAINTAINED. TYPE OF DEVICE:	☐ Y ☐ N ☐ NA
2. FLOW MEASURED AT EACH OUTFALL AS REQUIRED.	☐ Y ☐ N ☐ NA
3. SECONDARY INSTRUMENTS (TOTALIZERS, RECORDERS, ETC.) PROPERLY OPERATED AND MAINTAINED.	☐ Y ☐ N ☐ NA
4. CALIBRATION FREQUENCY ADEQUATE.	☐ Y ☐ N ☐ NA
RECORDS MAINTAINED OF CALIBRATION PROCEDURES.	☐ Y ☐ N ☐ NA
CALIBRATION CHECKS DONE TO ASSURE CONTINUED COMPLIANCE.	☐ Y ☐ N ☐ NA
5. FLOW ENTERING DEVICE WELL DISTRIBUTED ACROSS THE CHANNEL AND FREE OF TURBULENCE.	☐ Y ☐ N ☐ NA
6. HEAD MEASURED AT PROPER LOCATION.	☐ Y ☐ N ☐ NA
7. FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGE OF FLOW RATES.	☐ Y ☐ N ☐ NA

SECTION F – LABORATORY

PERMITTEE LABORATORY PROCEDURES MEET PERMIT REQUIREMENTS. ☐ S ☐ M ☐ U ☒ NA *(FURTHER EXPLANATION ATTACHED* ***No*** *)*

DETAILS: **NA = not applicable / not evaluated**

1. EPA APPROVED ANALYTICAL PROCEDURES USED *(40 CFR 136.3 FOR LIQUIDS, 503.8(b) FOR SLUDGES)*	☐ Y ☐ N ☐ NA

LANL SERF 03/12/2013	PERMIT NO. **NM0028355**

SECTION F - LABORATORY (CONT'D)

2. IF ALTERNATIVE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED ☐ Y ☐ N ☐ NA

3. SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT. ☐ S ☐ M ☐ U ☐ NA

4. QUALITY CONTROL PROCEDURES ADEQUATE. ☐ S ☐ M ☐ U ☐ NA

5. DUPLICATE SAMPLES ARE ANALYZED. _____% OF THE TIME. ☐ Y ☐ N ☐ NA

6. SPIKED SAMPLES ARE ANALYZED. ___ % OF THE TIME. ☐ Y ☐ N ☐ NA

7. COMMERCIAL LABORATORY USED. ☐ Y ☐ N ☐ NA

LAB NAME
LAB ADDRESS
PARAMETERS PERFORMED

SECTION G - EFFLUENT/RECEIVING WATERS OBSERVATIONS. ☐ S ☐ M ☒ U ☐ NA *(FURTHER EXPLANATION ATTACHED **Yes**).*

OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	FLOAT SOL.	COLOR	OTHER
Unpermitted Outfall at SERF	**No Discharge**	**No Discharge**	**No Discharge**	**No Discharge**	**No Discharge**	**No Discharge**	**No Discharge**

RECEIVING WATER OBSERVATIONS: **Outlet pipe of unpermitted outfall plugged. Staining observed on rock on slope below outlet pipe. Wattle installed at and below bedrock outcrop above Sandia Canyon. Sandia Canyon was flowing. See further explanations for discharges to Sandia Canyon and effluent exceedance.**

SECTION H - SLUDGE DISPOSAL

SLUDGE DISPOSAL MEETS PERMIT REQUIREMENTS. ☐ S ☐ M ☐ U ☒ NA *(FURTHER EXPLANATION ATTACHED **No**).*
DETAILS: **NA = not applicable / not evaluated**

1. SLUDGE MANAGEMENT ADEQUATE TO MAINTAIN EFFLUENT QUALITY. ☐ S ☐ M ☐ U ☐ NA

2. SLUDGE RECORDS MAINTAINED AS REQUIRED BY 40 CFR 503. ☐ S ☐ M ☐ U ☐ NA

3. FOR LAND APPLIED SLUDGE, TYPE OF LAND APPLIED TO: _____ (e.g., FOREST, AGRICULTURAL, PUBLIC CONTACT SITE)

SECTION I - SAMPLING INSPECTION PROCEDURES *(FURTHER EXPLANATION ATTACHED **No**).*

1. SAMPLES OBTAINED THIS INSPECTION. ☐ Y ☒ N ☐ NA

2. TYPE OF SAMPLE OBTAINED

GRAB _____ COMPOSITE SAMPLE _ METHOD _____ FREQUENCY

3. SAMPLES PRESERVED. ☐ Y ☐ N ☒ NA

4. FLOW PROPORTIONED SAMPLES OBTAINED. ☐ Y ☐ N ☒ NA

5. SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE. ☐ Y ☐ N ☒ NA

6. SAMPLE REPRESENTATIVE OF VOLUME AND MATURE OF DISCHARGE. ☐ Y ☐ N ☒ NA

7. SAMPLE SPLIT WITH PERMITTEE. ☐ Y ☐ N ☒ NA

8. CHAIN-OF-CUSTODY PROCEDURES EMPLOYED. ☐ Y ☐ N ☒ NA

9. SAMPLES COLLECTED IN ACCORDANCE WITH PERMIT. ☐ Y ☐ N ☒ NA

Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility
NPDES Permit No NM0028355
Compliance Evaluation Inspection
March 12, 2013

Further Explanations

Introduction

On March 12, 2013, a Compliance Evaluation Inspection (CEI) was conducted at the U.S. Department of Energy (DOE), Los Alamos National Laboratory (LANL), jointly operated by Los Alamos National Security, LLC (LANS) and the U.S. Department of Energy, National Nuclear Security Administration, Los Alamos Site Office (DOE) by Erin Trujillo accompanied by Bruce Yurdin and Sarah Holcomb, of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB). This inspection was at the Sanitary Effluent Reclamation Facility (SERF) in Technical Area (TA) 3-1398 and 3093 buildings.

LANL is classified as a major discharger under the federal Clean Water Act, Section 402 National Pollutant Discharge Elimination System (NPDES) permit program and is assigned permit #NM0028355. The permit authorizes the discharge from eleven (11) outfalls as of permit modification dated October 11, 2011 to several tributaries, 20.6.4.126 and 20.6.4.128 NMAC, thence to the Rio Grande of the Rio Grande Basin.

The NMED performs a certain number of CEI's for the U.S. Environmental Protection Agency (USEPA) each year. The purpose of this inspection is to provide USEPA with information to evaluate the permittees' compliance with the NPDES permit. This report is based on review of files maintained by the permittees and NMED, on-site observation by NMED personnel, and verbal information provided by the permittees' representatives.

An entrance interview was conducted with LANS and DOE staff at approximately 0845 hours at LANL ENV-RCRA offices on the day of this inspection. The inspector made introductions, presented credentials and discussed the purpose of this inspection at the SERF facility. Entrance at the SERF was at approximately 1030 hours. A tour of the SERF was conducted with the Permittees' on-site representatives. An exit interview to discuss the preliminary findings of this inspection was conducted at SERF with LANS and DOE staff. The inspector and NMED SWQB representatives left the facility at approximately 1300 hours on the day of this inspection.

SERF Treatment Scheme and Solids Management

LANL's SERF was originally built in 2003 (building TA-3-1398) to test technology for treating sanitary effluent (Cooling Tower Water Conservation Project). Construction began in July 2011 (second building TA-3-3093) to expand and upgrade the treatment of sanitary effluent from LANL's Sanitary Waste Water System (SWWS) at TA-46. The expansion increased the capacity of SERF from 98.8 to 300 gallons per minute (gpm). The purpose of SERF is to meet the PCB effluent limit at Outfall 001 and to provide blended make-up water for the large cooling towers at the Strategic Computing Complex (SCC). From SWWS, flow is piped directly to SERF or to a 500,000 gallon reuse and fire protection tank at TA-3 (Power Plant). From the Reuse Tank, flow can be used at the Power Plant, sent to SERF for tertiary treatment, or discharged to Outfall 001.

Treatment at SERF includes chemical precipitation using Ferric Chloride and Magnesium Chloride, flocculation using Glycerine, sedimentation (settling), neutralization or pH adjustment using Hydrochloric Acid or a caustic soda Sodium Hydroxide, reverse osmosis (RO) hyperfiltration, evaporation for RO

reject, and pressure filtration to dewater sludge. Sodium hypochlorite is used for disinfection and cleaning of the RO Unit. LANL's SERF process schematic is presented in Figure 2 of this report.

Treated water is stored in a 400,000 gallon storage tank at SERF. Booster pumps can send the flow to the Power Plant (Outfall 001) or to SCC Cooling Towers at TA-3-2327 (Outfall 03A027). Flows from the SERF are a maximum of 144,000 gallons per day (gpd) with an average of 47,568 gpd. The Permittee is authorized to discharge power plant waste water from cooling towers, boiler blowdown drains, demineralizer backwash, R/O reject, floor and sink drains, and treated sanitary re-use at Outfall 001 at TA-3-22 power plant (Latitude 35E52'26"N, Longitude 106E19'09"W) to Sandia Canyon. The Permittee is authorized to discharge cooling tower blowdown and other wastewater from SCC cooling towers at TA-3-285 & 2327 at Outfall 03A027 (Latitude 35E52'26"N, Longitude 106E19'08"W) to Sandia Canyon.

Solids from the filter press are placed in on-site plastic lined roll off containers with lids and disposed as special waste in an approved solid waste landfill in Rio Rancho, New Mexico (Rio Rancho Waste Management Landfill). Reject from the Reverse Osmosis tank at SERF is sent to an evaporation basin at TA-60 permitted by the NMED Groundwater Quality Bureau (GWQB).

Summary of LANL's Bypass, Non-Compliance and Unpermitted Discharge Reports

The following is a summary of LANL's bypass, non-compliance and unpermitted discharge reports associated with SERF and Outfall 001 from July 2012 thru March 2013:

Summary from LANL's Report, Bypass of SERF, July 5, 2012:

- Release from low pressure pipeline between the SERF and evaporation basin at TA-60-91 was discovered at approximately 12:00 pm on 07/05/2012. The release originated from two air relief valves. An estimated 1,000 gallons of partially re-treated effluent from a manhole behind TA-60-91 building discharged to Sandia Canyon. A release from a second manhole behind TA-60-91 discharged an estimated 200-300 gallons of partially re-treated effluent but did not reach Sandia Canyon. Flow was stopped at approximately 12:30 pm on 07/05/2012. Samples of the discharge were not collected. LANL's written report states, *"…it is expected that the effluent was of the NPDES permit quality and neutral pH."* Two (2) faulty air relief valves were replaced.
- Bypass/Release 24-hour verbal report on 07/06/2012.
- Bypass/Release 5-day written report dated 07/10/2012.

Summary from LANL's Reports, Bypass of Treatment at SERF, Associated Non-Compliance Outfall 001, January 30, 2013:

- Blended water pump at the SERF became inactive due to a failed hydrochloric acid pipe valve union connection. SERF stopped processing water on 01/30/2013 at approximately 10:40 pm. Effluent from the TA-46 SWWS facility was pumped to the TA-3 re-use tank and discharged directly to Outfall 001 without treatment at SERF. Pipe union connection was repaired at approximately 2:00 pm on January 31, 2013. A total of 678,480 gallons of effluent was discharged to Outfall 001 during the bypass of SERF. Cause of the failed connection is under investigation.
- Bypass 24-hour verbal notice on 01/31/3012.
- Bypass 5-day written report dated 02/04/2013.
- Effluent Limit Exceedance / Non-Compliance (following receipt of final validated analytical results for Outfall 001) 24-hour verbal notice on 02/15/2013.
- Effluent Limit Exceedance / Non-Compliance 5-day written report dated 02/20/2013:

	Outfall 001	Daily Max Effluent Limit	Units
Total PCBs	0.00107	0.00064	µg/L

Summary from LANL's Report, Potential Unpermitted Discharge Report, Reported February 28, 2013:

- *"On February 27, 2013, ENV-RCRA was asked to investigate a possible discharge on the north side of the Sanitary Effluent Reclamation Facility (SERF) based on observations from across the canyon.... On arrival at SERF, ENV-RCRA personnel observed discoloration on rocks and down-slope that appears to have originated from a pipe on the side of the hill. The pipe comes from a sump in an open secondary containment pad where chemical transfers occur. Operators at the facility confirmed that contents of the sump can consist of rain water, snowmelt, dirt, pad rinse water, and residual amounts of chemicals related to the transfer activities. The operators' practice was to analyze the sump contents to verify the pH is between 6.0 and 9.0 standard units and that there is no oil sheen before opening the valve to the discharge pipe. The sump volume is approximately 200 gallons…. The sump contents were discharged into Sandia Canyon…. Samples of soil and frozen discolored liquid down-gradient from the pipe were collected and sent to an off-site analytical laboratory for analysis. Results are pending. The observed discoloration is currently believed to be attributable to ferric chloride residue…. Established procedures to discharge uncontaminated storm water from the secondary containment sump were followed despite the potential presence of contaminates…. Regular discharges from the sump began in approximately July 2012 as the SERF expansion was complete and full scale treatment of sanitary effluent was implemented. It is estimated that the sump has been discharged one to two times per week since then. The last discharge is believed to have occurred on February 21, 2013…. Discharges from the sump to the discharge pipe have been halted and the valve to the discharge pipe has been locked out. The flap on the end of the pipe has been tack-welded shut."*

  Note: As described below and shown in Photos #4 and 8, the valve vault cover was observed to be tacked welded and the pipe plugged.

- 24-hour verbal report on 02/28/2013.
- 5-day report dated 03/04/2013.

On-Site Chemical Storage and Handling / On-site Observations

Contents of sump pits inside the buildings are returned to the beginning of the SERF process (Reaction Tank No. 1) according to the Operations Manager of SERF. Outside chemical storage and loading is conducted between the SERF buildings in an unsheltered area. Bulk chemical containers are loaded off delivery vehicles and transported by forklift to a concrete pad with a raised berm and raised curb between the SERF buildings. Feed pumps for Hypochlorite, Sodium Hydroxide, Magnesium Chloride, Sodium Bisulfite, Hydrochloric Acid tanks are outside the TA-3-1398 building. Chemicals are piped from storage tanks in TA-3-1398 thru exterior overhead pipes between the two buildings to TA-3-3093. Blended water tanks and a thickener tank also exist outside.

Empty bulk storage containers were stored on gravel behind (south side) of TA-3-3093. Vents for chemical storage tanks inside TA-33-1398 are above a drain pipe collection with outlet onto the concrete pad. Drums used during maintenance activities to drain chemicals from the treatment system were stored outside on the bermed concrete pad. According to the Operations Manager for SERF, empty drums and bulk storage containers were not rinsed out at the site. Two (2) bulk containers with product were stored within a portable spill and leak containment berm on the concrete pad. According to the Operations Manager for SERF, the portable containment had been recently installed. White residue was observed on the portable containment. According to the Operations Manager for SERF, white spots were typical when potable water dried. Other drums and containers were stored on the concrete pad. Spill kit materials were outside at the loading and concrete pad area.

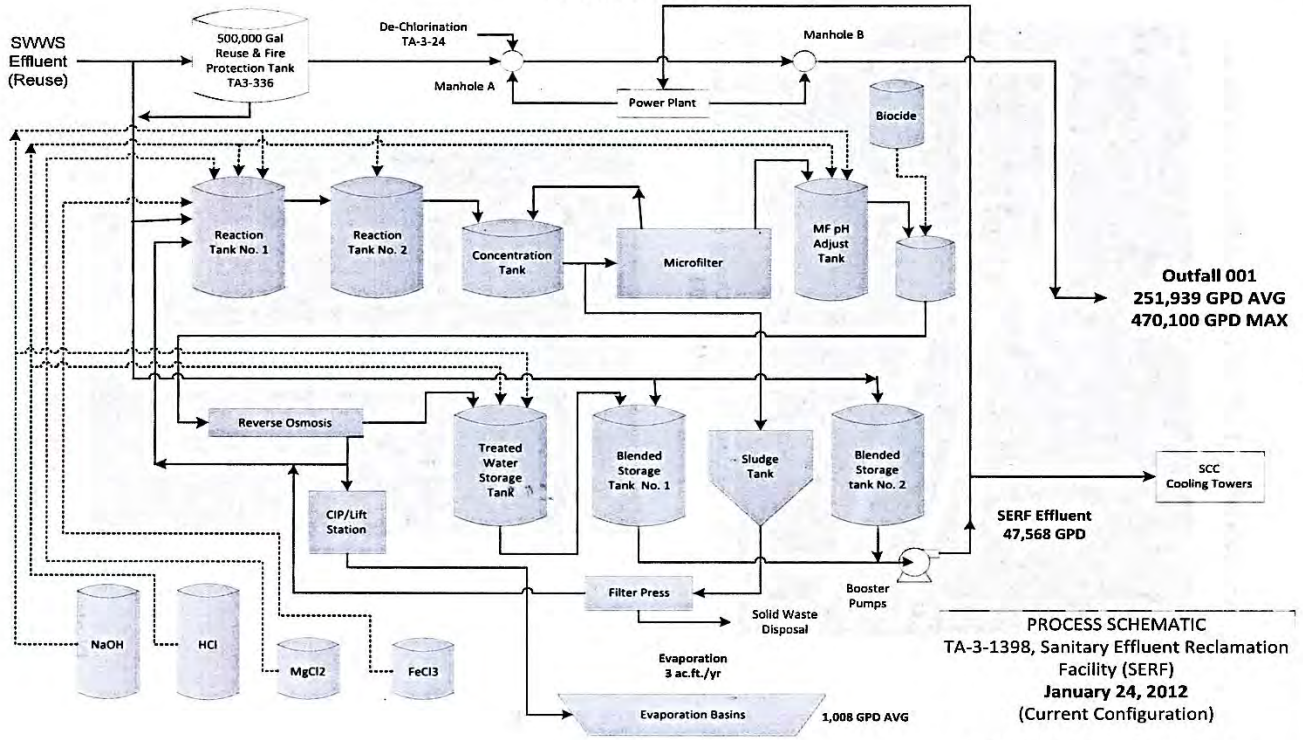
The bermed concrete pad between the SERF buildings has been called "secondary containment" by permittees' representatives, but the concrete pad had an open grate above a sump pit. The grate to the open sump pit was not covered, and was not protected by berm or other control measure. The open sump pit is connected to a pipe with an outlet north of the SERF buildings above Sandia Canyon. A valve, accessed from a covered valve vault, was used to control the release from the sump to the pipe outlet according to the permittees' on-site representatives. The valve vault cover above the valve had been tacked welded. A temporary cap has been installed to plug the end of the pipe at the outfall.

A brown stain was observed on the rock on the slope and channel below the outlet pipe. Water in the channel and at the bedrock outcrop may have been from recent snow melt. Wattle had been installed at and below the bedrock outcrop above Sandia Canyon.

Figure 1: Location Map
Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility / NM0028355

Figure 1: LANL's SERF Process Schematic (2012 Permit Re-Application)

Figure 4
Process Flow Diagram for the TA-3-1398, Sanitary Effluent Reclamation Facility (SERF)
(Current Configuration)



Section A - Permit Verification – Overall Rating of "M = Marginal",
Section B - Recordkeeping and Reporting Evaluation – Overall Rating of "M = Marginal", and
Section G - Effluent/Receiving Waters – Overall Rating of "U = Unsatisfactory"

Permit Requirements for Permit Verification, Recordkeeping and Reporting

Part III.B.2 (Standard Conditions, Duty to Mitigate) of the permit states:

> *The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.*

Part III.C.3 (Standard Conditions, Retention of Records) of the permit states:

> *The permittee shall retain records of all monitoring information, including all calibration and maintenance records…*

Part III.D.2 (Standard Conditions, Reporting Requirements, Anticipated Noncompliance) of the permit states:

> *The permittee shall give advanced notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.*

Part III.D.7.a (Standard Conditions, Twenty-Four Hour Reporting) of the permit states (**emphasis added**):

> *The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall be provided within 5 days of the time the permittee becomes aware of the circumstances. The report shall contain the following information: (1) A description of the noncompliance and its cause; (2)* ***The period of noncompliance including exact dates and times****, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and, (3) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.*

Findings for Permit Verification, Recordkeeping and Reporting, Effluent/Receiving Waters

As a result of a bypass of treatment at SERF, total PCBs daily max effluent limit was exceeded at Outfall 001 on January 31, 2013. The 1,000 gallon release that occurred between the SERF and evaporation basin at TA-60-91 on July 5, 2012 was not sampled.

The permit does not authorize discharge of waste waters from treatment facility operations directly to Sandia Canyon at SERF. SERF operators routinely (2-3 days a week) discharged to Sandia Canyon treated pad rinse water, and residual amounts of chemicals related to chemical transfer activities possibly comingled with stormwater (precipitation, snowmelt) from a period of noncompliance between approximately July 2013 to February 21, 2013.

The exact dates and times of the unpermitted discharge were not included in the written 5-day reports. Additional information from SERF Operational Logs may be available.

There were no records provided of the pH measurement or operator observations as described on the 5-day compliance report and by the Operations Manager of SERF when pad sumps were drained on February 21, 2012.

An example of the written daily or operation log described by SERF Operations Manager indicating actions taken during the last flow/release from the outside storage pad, sump, pipe and outlet was requested during this inspection. A copy of Page 291 of the SERF Daily Operation Log starting June 19, 2012 was provided (see Figure 3 of this report). The log at 1413 indicates *"transferring HCL."* At 1530, the log states, *"…working on nuetralizing (sic) chemical pad sump."* An entry for the next day on 02/21/2013 (time unreadable) between 0820 and 1115 states, *"completed neutralization of pad sumps-drained."* Information submitted for review did not have records of pH measurements and/or operation observations. Also, LANL's non-compliance report stated, "*The operators' practice was to analyze the sump contents to verify the pH is between 6.0 and 9.0 standard units and that there is no oil sheen before opening the valve to the discharge pipe."* For reference, Part I.A of the Permit for authorized discharges at Outfall 001 to Sandia Canyon states, *"During the period beginning the six months from the effective date through the expiration date of the permit, the discharge shall meet the pH range of 6.6 to 8.8."*

Analytical results of samples of soil and frozen discolored liquid down-gradient from the pipe have not been submitted by LANL as of the writing of this report. Therefore, it is not known if the discharge (soils or waters) remain a source of pollutants to Sandia Canyon. Discharges from this area may occur as a result of storm events. LANL's Individual Permit NPDES Permit No. NM0030759 authorizes discharge of storm water associated with industrial activities from specified solid waste management units (SWMUs) and areas of concern (AOCs). However, this area is not identified in NM0030759. Depending upon the analytical results and coordination with NMED and EPA, more corrective action may be required in this area to protect waters of the U.S.

Section C - Operations and Maintenance (Facility Site Review) - Overall Rating of "M = Marginal"

Permit Requirements for Operations and Maintenance

Part III.B.1 (Standard Conditions) of the permit states:

> *…The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failure either by means of alternate power sources, standby generators or retention of inadequately treated effluent.*

Part III.B.3 (Standard Conditions, Proper Operation and Maintenance) of the permit states:

> *a. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit…. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit.*
>
> *b. The permittee shall provide an adequate operating staff which is duly qualified to carry out operation, maintenance and testing functions required to insure compliance with the conditions of this permit.*

Findings for Operation and Maintenance

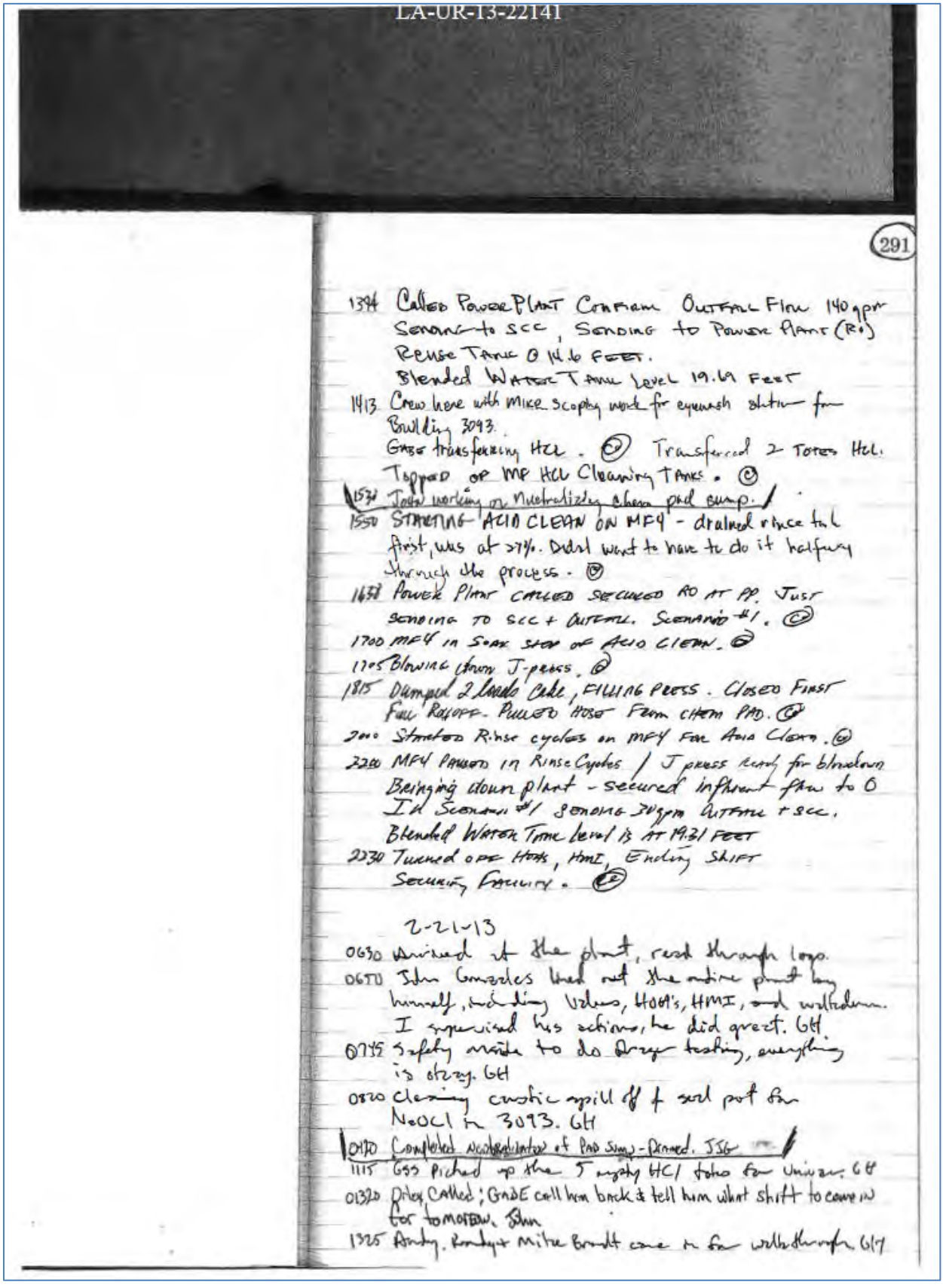
SERF did not have on-site standby power or generator.

An adequate number of qualified operators at SERF does not appear to have been provided. The facility is not fully staffed. Only 4 of the required 6 operators were assigned to the facility according to the Operations Manager of SERF.

There were no high level alarms for indoor sump pit submersible pumps. High levels would be noticed during visual inspections according to the Operations Manager of SERF. Additional procedures, training and/or equipment may be needed to ensure that overflows of the sump pits do not occur (e.g., connection to the SCADA system, other types of alarms, more frequent and recorded inspections, etc.).

Updated written procedures for chemical loading and spill procedures appear needed due to the unpermitted discharge. Documentation of operator training described by the Operations Manager of SERF was requested during this inspection. Chemical loading and spill procedures were listed in the written training summary. Updated and specific written procedures for the collection, treatment and proper return of waste waters to a treatment facility and/or proper disposal of sump rain water, snowmelt, dirt, pad rinse water, and residual amounts of chemicals related to the transfer activities appear needed.

Figure 3: LANL SERF DAILY OPERATION LOG Page 291



LA-UR-13-22141

291

1344 Called Power Plant Confirm Outfall Flow 140 gpm Sending to SCC, Sending to Power Plant (R.O.) Reuse Tank @ 14.6 Feet. Blended Water Tank Level 19.69 Feet

1413 Crew leave with Mike Scoping work for eyewash station for Building 3093. Gabe transferring HCl. Transferred 2 Totes HCl. Topped off MF HCl Cleaning Tanks.

1530 John working on Neutralizing chem pad sump.

1550 STARTING ACID CLEAN ON MF4 - drained rinse tank first, was at >7%. Didn't want to have to do it halfway through the process.

1637 Power Plant called secured RO at PP. Just sending to SCC + Outfall. Scenario #1.

1700 MF4 in Soak step of Acid Clean.

1705 Blowing down J-press.

1815 Dumped 2 loads Cake, FILLING PRESS. Closed First Full Rolloff. Pulled Hose From Chem Pad.

2000 Started Rinse cycles on MF4 for Acid Clean.

2220 MF4 Passed in Rinse Cycles / J press ready for blowdown Bringing down plant - secured influent flow to 0 In Scenario #1 sending 30gpm outfall to SCC. Blended Water Tank level is at 19.31 Feet

2230 Turned off Hoses, HMI, Ending Shift Securing Facility.

2-21-13

0630 Arrived at the plant, read through logs.

0650 John Gonzales lined out the entire plant by himself, including Valves, HOA's, HMI, and walkdown. I supervised his actions, he did great. GH

0745 Safety meeting to do Drager testing, everything is okay. GH

0820 cleaning caustic spill off of steel pad for NaOCl in 3093. GH

0930 Completed Neutralization of Pad Sump - pumped. JSG

1115 GSS picked up the 5 empty HCl totes for Univar. GH

0320 Riley Called; Gabe call him back & tell him what shift to come in for tomorrow. John

1325 Randy, Randy + Mike Brandt came in for walkthrough GH

NMED/SWQB
Official Photograph Log
Photo # 1

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1155 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Looking north, container storage at south end of concrete pad with raised berm painted yellow.		

NMED/SWQB
Official Photograph Log
Photo # 2

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1159 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Chemical storage inside portable spill containment.		

NMED/SWQB
Official Photograph Log
Photo # 3

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1201 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: White residue or spots on portable spill containment.		

NMED/SWQB
Official Photograph Log
Photo # 4

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1207 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Tack-welded valve vault cover. The valve was used to release flow to pipe outlet above Sandia Canyon.		

NMED/SWQB
Official Photograph Log
Photo # 5

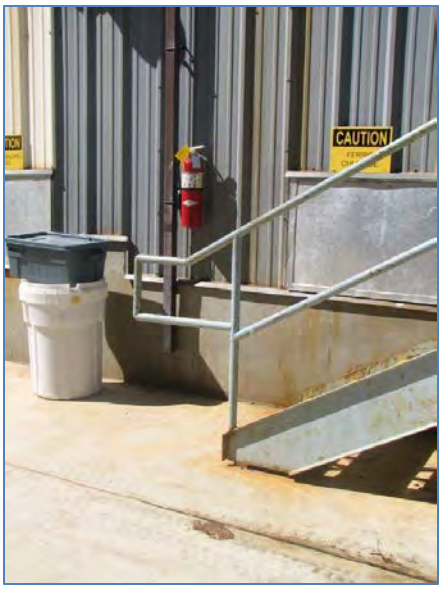
Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1210 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Open grate above outside open sump. Exterior chemical pipes in this area shade, but do not provide shelter area from precipitation. Chemical containers (metal caged container) and drums stored on concrete pad.		

NMED/SWQB
Official Photograph Log
Photo # 6

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1211 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Vents for chemical storage tanks. Tanks are inside TA-33-1398 (not shown).		

NMED/SWQB
Official Photograph Log
Photo # 7

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1212 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Drain from vents shown in previous photo has downspout on concrete pad. Example of spill kit also shown in photo		

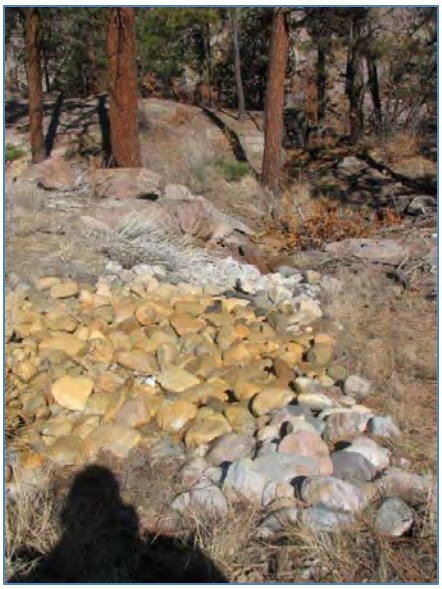


NMED/SWQB
Official Photograph Log
Photo # 8

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1213 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Plug installed in pipe from sump		

NMED/SWQB
Official Photograph Log
Photo # 9

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1214 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: A brown staining was observed on the rock on the slope and channel below the outlet pipe shown in previous photo.		



NMED/SWQB
Official Photograph Log
Photo # 10

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1216 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Ponderosa Pine (approximately 50 feet north of plugged pipe). On-site representatives noted that this pine was drought stricken.		

NMED/SWQB
Official Photograph Log
Photo # 11

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1218 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Wet channel below plugged pipe. Some staining observed. Water in channel and at bedrock outcrop may have been from recent snow melt.		

NMED/SWQB
Official Photograph Log
Photo # 12

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1221 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Wattle had been installed at and below the bedrock outcrop above Sandia Canyon. Water in bedrock outcrop may have been from recent snow melt. Sandia Canyon is approximately 125 feet north of plugged pipe.		

NMED/SWQB
Official Photograph Log
Photo # 13

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1228 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Empty bulk storage containers were stored on gravel behind (south side) of TA-3-3093.		

NMED/SWQB
Official Photograph Log
Photo # 14

Photographer: G.Herrera, SERF Operator as directed by Erin Trujillo	Date: 03/12/2013	Time: 1228 hours
City/County: Los Alamos County		State: New Mexico
Location: Los Alamos National Laboratory / Sanitary Effluent Reclamation Facility (SERF) / NM0028355		
Subject: Empty bulk storage containers were stored on gravel behind (south side) of TA-3-3093.